

Breaking the Fixed-Line Last-Mile Monopoly

— The Tailong Model of Subscriber-loops

**Prof. Kaili Kan, School of Economics & Management
Beijing Univ. Of Posts & Telecommunications
10 West Tu-cheng Rd., Beijing 100876, China
Tel.: +86-13901178339, +86-10-62283083
Email: kankaili@gmail.com**

The subscriber-loop, or the so-called “last mile” connection from the fixed-line telephone operators’ switch to individual households, has long been recognized as the bottleneck for breaking the “natural” monopoly of fixed-line telecom operators. Reasons of this bottleneck include the following:

- The subscriber-loop, although simple without much technology involved, constitutes the major cost of any local telephone networks, often estimated to reach as high as 80% of their total.
- As local telephone networking introduces competition, multiple fixed-line operators tend to build their own subscriber-loop access leading to individual households. However, multiple accesses present little value to consumers, even often imposing a nuisance for residents.

As a result of the high-cost to operators and low value to consumers, subscriber-loops have become the bottleneck for local telephone competition. That is, once a fixed-line operator has built its subscriber-loop leading to a household, it forbids any other operators to access this household, and thus locks-in this household away from services of other operators, effectively constituting a bottleneck monopoly.

In the case of China, although consumers had to pay a high “connection charge” to telephone operators in order to build the subscriber-loop leading to his/her household in the early 1990s, as supply of telephone services met demand and competition was introduced in the mid-1990s, the Ministry of Information Industries (MII) ordered the elimination of connection charges in 2001, and fixed-line operators began to build the subscriber-loops at their own cost. Furthermore, as new construction of residential and office buildings is carried on immensely throughout the nation, this bottleneck monopoly in turn leads to fixed-line operators fiercely building their own subscriber-loops into new areas or buildings and thus declaring their own “territory”. Therefore, although the introduction of local competition was intended to provide consumers a choice of operators, all households are locked into each operator’s

territory and are left with no choice at all, thus effectively invalidating the introduction of competition ^[1].

After analyzing the subscriber-loop, it is obvious that the reason of forming a bottleneck is because each operator only allows its own traffic to pass through its subscriber-loops and only allows its own services to be provided over them. Therefore, the bottleneck monopoly of subscriber-loops translates into the natural monopoly of fixed-line operators who have built the subscriber-loops into each building. The 1996 Telecommunication Act of the United States, as well as the FCC's (Federal Communication Commission) unbundled network element (UNE) approach that followed, intended to break this bottleneck monopoly by forcing incumbent operators to open their subscriber-loops to competitors. However, this approach failed its purpose even after 10 years due to resistance from incumbent operators. In other words, it was proven unsuccessful to separate an operator's ownership of subscriber-loops from the exclusive right of using them to carry traffic and provide services ^[2-4].

Therefore, the next possibility is to have a third-party to build, own, maintain and operate subscriber-loops who is neutral among competing operators and is willing to allow all the operators to provide services over them. This is exactly what happened in Chengdu of Sichuan province, southwestern China over the last few years, the so-called "Tailong Model".

In 2002 Tailong Communication Networking Incorporated, a private corporation, was established to invest, build, and operate subscriber-loops in a number of newly built residential areas in Chengdu. Its subscriber-loops extend into the buildings of these areas from the hub of Tailong. On the other hand, all the four fixed-line operators in Chengdu have optical cables connecting Tailong's hub and their own switches. Thus, the resident or household in each apartment is able to choose and connect to any of these four operators through Tailong's subscriber-loop, while the "chosen one" will have the business of this customer to provide service. If the customer wants to change to another service provider anytime, Tailong will change the connection according to the customer's will by a single days' notice. Given the choice, consumers obviously will select the operator who provides the best service at the lowest price, thus fully taking advantage of competition among the operators over the same pair of Tailong's subscriber-loop. In this way, although Tailong is not a telephone operator and is not licensed to provide telecommunication services, it becomes the platform for fixed-line service competition, effectively breaking the last-mile monopoly of local telephone networks.

Although Tailong's subscriber-loop benefits consumers by breaking the fixed-line monopoly, its connection does not cost consumers anything. It is well known that subscriber-loops present the major investment, construction and maintenance work of local telephone networks. As Tailong builds, owns and maintains the subscriber-loops, it saves all these from fixed-line operators. Thus, Tailong provides a valuable service to the operators and, in order to recoup its investment and cost of operation, Tailong charges the operators a monthly fee instead of charging the consumers.

In addition, as Tailong is a very local operation, it establishes its maintenance office in each residential area and is able to provide 24-hour service to its customers, which is impossible for large-scale telephone operators. Furthermore, Tailong collects telephone bills door-by-door on behalf of the operators and saves the trouble of operators as well as provides convenience to consumers.

Obviously, the "Tailong Model" has the following advantages:

First of all, this model effectively breaks the natural monopoly created by subscriber-loops and thus provides consumers the ability to choose fixed-line operators and service providers. As a result of competition, local operators are forced to provide the best service at the lowest price by increasing efficiency and adopting new technologies.

Secondly, this model creates a win-win situation by saving all the cost and work of subscriber-loops for the operators. This is especially important to competitive operators who have a smaller share of the market. Without the Tailong model, a competitive operator often are forced to face a dilemma: either to give up the business opportunity in an area, or to take the risk of building its subscriber-loops in this area only to capture too small a market share and thus lose money. With Tailong's subscriber-loops in place, competitive operators are freed of this risk and are much more willing to compete against incumbent operators.

Thirdly, the Tailong Model eliminates redundant construction of subscriber-loops by different operators, thus saves valuable social resources. This is especially important in the case of China, as all telephone operators are majority-owned by the government in order to introduce competition.

Finally, although this Tailong model does not break the natural monopoly of subscriber-loops in individual buildings or residential areas, it does not present a large scale monopoly that may endanger competition, due to the fact that there is no technical or financial threshold for such operations and does not have any significant economy-of-scale. As a result, dozens,

or even hundreds, of Tailong-like operations may survive and compete against each other in a single city. In the case that one of these Tailongs demands monopolistic prices from operators, the operators may simply ignore this one and leave it to dry out.

Thus, in order to assure Tailongs do not obstruct fair competition, government regulators are required to:

- Limit the scale of such operations, and
- Enforce uniform and transparent terms and pricing in the contracts between each of these operations and operators.

Since the establishment of Tailong in Chengdu in 2002, it developed a customer-base of 21,000 households by the end of the year, and extended its business to 55,000 households by the end of 2005. Nowadays, it was reported that there are now well over a dozen Tailong-like operations throughout China, while some are focusing their effort to provide fiber-to-the-house (FTTH) service.

In summary, the Tailong model provides an alternative approach to breaking the local fixed-line telephone monopoly and could be deployed in many nations, especially among developing countries.

References

[1] Kaili Kan, “The Shudu-Tailong Model of Customer Premises Networks”, *Reviewing and Challenging Telecommunications*, BUPT Press, Beijing 2005

[2] Woroch A. Glenn (2002), “Local Network Competition”, *Handbook of Telecommunication Economics*, Elsevier 2002

[3] Nicholas Economides, “The Telecommunications Act of 1996 and its Impact”, *The Annual Telecommunications Policy Conference*, Tokyo, Japan, December 4, 1997

[4] D. Teece, “Telecommunication in Transition: Unbundling, reintegration and competition”, Center for research in Management, University of California, Berkeley, 1999
